What is claimed is:

1. A composition comprising at least two synthetic oligonucleotides,

wherein a first oligonucleotide is linked to a first binding partner and a second oligonucleotide is linked to a second binding partner, the first and second binding partners being selected from the group consisting of cyclodextrin, adamantane, streptavidin, and biotin,

wherein each oligonucleotide comprises a region complementary to a tandem, non-overlapping region of a target nucleic acid, the tandem non-overlapping regions of the target nucleic acid being separated by 0 to 3 bases,

and wherein the target nucleic acid is an mRNA, a single-stranded viral RNA, or a single-stranded viral DNA.

2. The composition of claim 1, wherein the oligonucleotides are from 9 to 25 nucleotides in length.

3. The composition of claim 1, wherein at least one of the oligonucleotides is modified.

4. The composition of claim 3 wherein at least one of the oligonucleotides comprises at least one non-phosphodiester internucleoside linkage.

5. The composition of claim 3, wherein at least one of the oligonucleotides contains at least one phosphorothioate internucleoside linkage.

6. A method of inhibiting the expression of a nucleic acid *in vitro* comprising the step of treating the nucleic acid with the composition of claim 1.

7. The method of claim 6, wherein the first and second oligonucleotides are complementary to an HIV DNA and/or HIV RNA.

8. A dimeric structure comprising a first synthetic oligonucleotide and a second synthetic oligonucleotide, each oligonucleotide comprising a region complementary to one of tandem, non-overlapping regions of a target nucleic acid, the target nucleic acid being an mRNA, a single-stranded viral RNA, or a single-stranded viral DNA,

the first oligonucleotide having a first binding partner attached to a 3′ terminus,

the second oligonucleotide having a second binding partner attached to a 5′ terminus, and

wherein the first and second binding partners are selected from the group consisting of cyclodextrin, and adamantane, biotin, and streptavidin, and

wherein the first and second binding partners are bound as a dimer when the first and second oligonucleotides are hybridized to the target nucleic acid.

9. The duplex structure of claim 8, wherein the first and second oligonucleotides are complementary to one of tandem regions of the target nucleic acid that are separated by 0 to 3 bases.

10. The duplex structure of claim 8, wherein at least one of the oligonucleotides is modified.

11. The duplex structure of claim 10, wherein at least one of the oligonucleotides contains at least one non-phosphodiester internucleoside linkage.

12. The duplex structure of claim 10, wherein at least one of the oligonucleotides contains at least one phosphorothioate internucleoside linkage.

13. A ternary structure comprising the duplex structure of claim 8 and a target nucleic acid to which regions of the first and second cooperative oligonucleotides are complementary.

14. A method of inhibiting the expression of a nucleic acid *in vitro* comprising the step of treating the nucleic acid with the structure of claim 8.

15. The method of claim 14, wherein the first and second oligonucleotides are complementary to an HIV DNA and/or HIV RNA.

16. A pharmaceutical formulation comprising the composition of claim 1.

17. A pharmaceutical formulation comprising the structure of claim 8.

18. A pharmaceutical formulation comprising at least two synthetic cooperative oligonucleotides, wherein each oligonucleotide comprises a region complementary to a tandem, non-overlapping region of a target nucleic acid, and a dimerization domain at a terminus of each oligonucleotide,

the tandem, non-overlapping regions of the target nucleic acid being separated by 0 to 3 base,

the dimerization domains of the oligonucleotides being complementary to each other, and

the target nucleic acid being an mRNA, a single-stranded viral DNA, or a single-stranded viral RNA.

19. A pharmaceutical composition comprising a duplex structure comprising a first and a second synthetic oligonucleotide, wherein each oligonucleotide comprises a region complementary to a tandem, non-overlapping region of a target nucleic acid,

the tandem, non-overlapping regions of the target nucleic acid being separated by 0-1 base,

the target nucleic acid being an mRNA, a single-stranded viral DNA, or a single-stranded viral RNA, and

the first oligonucleotide having a terminal dimerization domain complementary and hybridized to the dimerization domain of the second oligonucleotide when the first and second oligonucleotides are hybridized to the target nucleic acid.